

UNIVERSITY OF QUEENSLAND

Computer Centre

NEWSLETTER

authorization: Director of the Computer Centre

1 NEW VERSION OF COGO

The Main Roads Department has released a new version of COGO. This version has been compiled with FORTRAN-10 and the Main Roads Department reports that compared with the old version, execution times have been significantly reduced. This new version resides on the LANG: directory and may be accessed by the command:

RUN LANG:COGO

The version of COGO on the system directory will be deleted in the near future.

2 NEW VERSION OF MIDITRAN

A new version of MIDITRAN is now available on the system. Several longstanding errors have been corrected and the deck setup has been simplified. Areas affected are:

- (a) Conversion of Miditran cards: Under some circumstances, if a .RUN or .MIDI card was followed by an ASCII card then a Miditran card, following Miditran cards were converted incorrectly. This has been corrected.
- (b) Format Statement Processing: This has been altered to conform with the Australian standard. The change affects only the situation in which the format statement is completely scanned before the I/O list is exhausted and there is a set of level-1 parentheses. In this case the format statement is rescanned from the repetition factor preceding the right most level-1 opening parenthesis and scanning continues until the final closing parenthesis is encountered. As usual a repetition factor of 1 is assumed if none is specified.

This change also corrects an error which resulted in that part of the format statement between the first level-1 closing parenthesis and the level 0 closing parenthesis being ignored if there was no repetition factor preceding the level-1 opening parenthesis.

Example: PRINT 10,(J,J=6,15)
 10 FORMAT(1X,I1,(I3),I4)

old (incorrect) output 6ΔΔ7
 Δ8
 Δ9
 .
 .
 .

the I4 was never scanned.

New output 6ΔΔ7ΔΔΔ8
 Δ9ΔΔ10
 11ΔΔ12
 .
 .
 .

where the I4 format is now included in each output line.

- (c) Use of array names as simple variables: It was possible to use an array name in an arithmetic expression where a simple variable was required;

example: DIMENSION A(10)
 .
 .
 .
 A = FLOAT(J**2)
 .
 .
 .
 P = Q+A

would in neither case result in a compiler error message.
Now both expressions will result in a compiler error message no. 051, "SUBSCRIPT REQUIRED".

- (d) The recommended deck setup now is:

```
$SEQUENCE
$JOB
$DECK READER.TMP/IMAGE:80
.
.
+end of image+
$EOD
.R MIDI
+end of file+
```

The Centre gratefully acknowledges the assistance of Mr. D. Johnston, Computer Science Department in correcting these errors.

3 NEW VERSION OF COBOL

A new version of COBOL and the Cobol library is available on the NEW: directory. In addition, new versions of ISAM, LIBRARY, SORT and RERUN are also available on NEW:. Version identification is:

```
COBOL  5A(174)-2
LIBOL  6A(325)-2
ISAM    2A(111)-2
SORT    6A(325)-2
RERUN    5(2)-2
LIBRARY 2C(10)-2
SELOTS 1A(21)-2
```

Users wishing to compile and load programs under the new Cobol should add NEW to their search list, as follows:

```
.R SETSRC
*M /NEW
*+C
```

;compile

;load

```
.R SETSRC
*M /NONEW
*+C
```

Users are requested to report any errors or problems encountered to the Centre.

3.1 COBOL 5A(174)-2

3.1.1 Multiple working-storage sections no longer allowed.

3.1.2 Value of LOW-VALUE or HIGH-VALUE for comp or comp-1 items in working-storage no longer throws an error.

3.1.3 Value of id data item of a file may not be located in the linkage section. Neither may value of user-number, date-written, symbolic key, actual key or file-limits.

3.1.4 Search all did not work if table being searched had a depending item.

3.1.5 CLOSE filename DELETE is valid.

3.1.6 Unbalanced parentheses in COMPUTE statement previously came out in wrong place or not at all.

- 3.1.7 Comment lines can now start files in a Cobol library file.
- 3.1.8 Two-word comp compares now succeed.
- 3.1.9 Statements containing subscripted operands of different size now compare.
- 3.1.10 The advancing item of a WRITE statement is now checked to see if it is a subscripted item.

3.2 LIBOL 6A(325)-2

Invalue key path was not taken when the end of file was encountered on a random access file. Records were 'read' to the limit of the file-limit specification with invalid data contained in the record. This has now been corrected.

3.3 ISAM 2A(111)-2

- 3.3.1 The new version corrects known errors.
- 3.3.2 ISAM files cannot be built with comp keys or comp-1 keys (undocumented). An error message will be generated.
- 3.3.3 /I switch (for ignore errors) can be used in conjunction with /P switch. This switch ensures that messages indicating incorrect order of keys and identical keys are made non-fatal errors.
- 3.3.4 Multiple switches are allowed per command string.

3.4 SORT 6A(325)-2

- 3.4.1 SORT now exits after completing a CCL file.
- 3.4.2 /B previously ignored for both input and output files.

3.5 COBOL Errors

The following errors remain uncorrected in the new version of COBOL 5A(174)-2:

- 3.5.1 Cobol report writer feature does not permit indexing of SOURCE and SUM items.

This problem has to be resolved by moving the indexed item to an un-indexed item just prior to the GENERATE.

- 3.5.2 MOVE's of subscripted items of more than 2047 characters are not properly compiled.

Users should program around this by separating large subscripted items into smaller pieces.

- 3.5.3 Paragraph names cannot be the same as any other user defined name, e.g. file names, data-names, program-id etc.

- 3.5.4 The first identifier of a COMPUTE statement may not be an edited numeric item.

Program around this by COMPUTing into a numeric field and then moving the answer to an edited numeric field.

- 3.5.5 Mixing of display-6 and display-7 fields within a record is illegal.

3.6 Manual Corrections

The following corrections should be made to the COBOL Manual:

- 3.6.1 p.5-30 Item b.

Data-names must be subscripted in all PROCEDURE DIVISION statements (including SEARCH).

- 3.6.2 p.6-76

No input/output may occur other than use of DISPLAY and ACCEPT during execution of a USE procedure.

- 3.6.3 p.9-4

Under the INSERT command for LIBRARY. Line numbers here refer not to the statement line numbers associated with Cobol source programs but line numbers used by some editing programs, e.g. the Digital LINED. The documentation will be changed at some stage to make this less confusing.

- 3.6.4 p.6-51 Item L.

Opening a file defined as random access with an OPEN 1-0 statement will create a file if one does not already exist. The documentation states otherwise.

3.6.5 The legal forms of using COPY are:

FD filename	COPY	libfil
SD sort-file	COPY	libsrt
RD report-name	COPY	librpt
LN name	COPY	libdat

where LN is the level-numbers.

4 NEW BMD PROGRAM

BMD12V (Multivariate Analysis of Variance and Covariance) is available as a core image (SAV) file on the STATS: area. Due to the core requirements of this program, it can be run only after 6p.m. when the available user core is 64K (twice the daytime core limit).

For full running procedures, please consult Newsletter N-162 (copies still available from the Centre) or contact the Centre's programming staff (extension 6288).

5 NEW VERSION OF DDT

On Friday, 2nd August, DDT V35(110) was implemented. A feature has been added to DDT to allow a single step execute. It operates as follows:

\$X (without an argument) executes the next instruction. This is the instruction about to be executed either when the last breakpoint was hit or after the last \$X was executed. After the instruction is executed the PC is updated (however, the breakpoint is not moved). \$P will always do the right thing after any number of \$X's. After executing the instruction, DDT prints out the contents of referenced locations. These are printed in floating point where appropriate. The modified flags are also printed out for JRSTF and JFCL. Then the next instruction is printed out (always in symbolic despite temporary or permanent output mode settings). A blank line is between the operands and the next instruction if the instruction executed was a skip or a jump that actually skipped or jumped.

N\$X where N<2**27: performs \$X N times, as above.

N\$X where $N < 2^{27}$: same as N\$X except that printout is suppressed for all but the last instruction executed.

\$\$X (without an argument) performs \$X indefinitely, without printing anything, until the PC reaches either .+1 or .+2. This is useful if one wants to execute a debugged subroutine.

N\$X (where N is an instruction) functions as it always has, i.e. it performs the instruction N.

Notes: (i) DDT looks for typein after each instruction in an N\$X cycle. This is the same as done by the search logic.

(ii) Breakpoints are not in place during a \$X.

6 RESTRICTIONS ON THE USE OF FILENAMES

Many system programs make assumptions about the nature of files, based on the extension and on the filename also in some cases. Appendix A of the DECsystem-10 Users Handbook is a table of standard filename extensions currently in use or reserved. Particular note should be taken of the spooled output extensions, CDP, LPT, PLT and PTP. These should not be used unless the filename is generated by the system. Such filenames are of the form xxxyyy.zzz, where xxx is a three character prefix to make the name unique, yyy is either Snn to indicate the station, or nnn to indicate the particular output device, and zzz is one of the spooled output extensions.

Several recent cases of delay in processing spooled output have been due to unfortunate choice of filenames. A user generated filename which has the same form as a monitor generated filename may cause confusion. At KJOB these files are queued for output to devices which may not exist. For example OUT7.LPT and ABC2.PLT would be queued for processing by LPT7: and PLT2:.

Unfortunately the present plotter software does not conform to these rules, so special care should be taken in choosing plotter filenames. New plotter routines are being developed to handle two plotters. The file produced will be correctly names to indicate the destination device.

There should be no need for CDP, PTP and LPT extensions unless generated by the system. LST is a safe alternative to LPT. For plotter files, the fourth character should not be numeric or "S". The new plotter software which will probably be available in the future will eliminate this problem.

7 COMPUTER CENTRE COURSES

On analysing the response to the questionnaire in newsletter N-166, it has been decided that the only course to be held in the remainder of 1974 will be a repeat of the "Introductory Fortran Course" in the mid-semester break, September 2-6. Interest in the two other courses was not sufficient to warrant their being repeated before next year.

The "Introductory Fortran Course" is intended specifically for members of the University Staff and Postgraduate Students and will be free to people from this category. Others may attend the course, but will be charged the usual rate of \$40.

Send applications to the Administrative Officer, Computer Centre, to arrive no later than 23rd August. People who have already indicated their interest need not apply.

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